REMARKS

Claims 3-9, 11-15, 18-24, 26-30, 33-39, and 41-45 are pending in this Application. Applicants have amended claims 3, 4, 6-9, 11-15, 18, 21, 22, 26, 28, 30, 33, 36, 37, 41, 43, and 45 to define the claimed invention more particularly. Applicants have canceled claims 1-2, 10, 16-17, 25, 31-32, and 40 without prejudice or disclaimer.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 3-14, 18-29, and 33-44 stand rejected under 35 U.S.C. §102(e) as being anticipated by Kitada et al. (US 2003/0037163 A1). Claims 15, 30, and 45 stand rejected under U.S.C. §102(e) as being anticipated by Gondal (US 2003/0067928 A1).

Applicants respectfully traverse these rejections in the following discussion.

I. THE CLAIMED INVENTION

The claimed invention (e.g., as defined by exemplary claim 3) is directed to a network system for a network having plural nodes connected.

A node belonging to the network system includes a learning frame management unit which refers to a MAC SA table cache to determine whether a learning frame transmission request corresponding to the MAC SA has been made, a MAC forwarding table memory which stores an output port for a destination MAC address and tag operations, and the MAC SA table cache which stores a source MAC address (MAC SA) which has made a learning frame transmission request.

In a conventional learning bridge network, as described in the Background of the present Application, a learning process enters a port which has received the frame and a source MAC address (MAC SA) of the frame in a filtering database so to determine a transfer destination port of the frame. In this system, a learning process does not operate when a node through which a flow passes depending on a direction allows a different asymmetrical flow. Thus, the frame reaches the destination but is also transferred to unnecessary destinations.

Therefore, the network becomes busy and the bandwidth usability reduces (e.g., see Application at page 2, line 24 – page 3, line 6).

The claimed invention, however, provides a network having plural nodes connected, wherein a node belonging to the network is provided with a learning frame management unit which refers to a MAC SA table cache to determine whether a learning frame transmission request is made or not, a MAC forwarding table memory which stores an output port for a destination MAC address and tag operations, and a MAC SA table cache which stores a source MAC address (MAC SA) which has made a learning frame transmission request (e.g., see Application at page 4, lines 8-16, page 22, lines 24-27).

The invention assigns a VLAN tag for every destination address. For example, when communicating between a subscriber (A) and ISP (B), the tag corresponding to the subscriber (A) of an address is added to the frame transmitted to a subscriber (A) from ISP (B), and the tag corresponding to ISP (B) of an address is added to the frame transmitted to ISP (B) from a subscriber (A).

For this reason, it is necessary to determine the tag which should be added on a destination MAC address. That is, mapping between a destination MAC address and a tag is needed. Therefore, the invention creates the mapping table (MAC forwarding table memory) of a destination MAC address and the tag which should be added by transmitting a learning frame so that such mapping can be performed automatically.

This feature is important because even when the asymmetrical flow is flown by sending the learning frame through a path opposite to the path where the main signal frame flows, the learning process can be functioned, the network congestion can be remedied from becoming congestion, and the bandwidth usability can be improved (e.g., see Application at page 113, lines 13-18).

II. THE PRIOR ART REJECTIONS

A. The 102(e) Kitada et al. reference rejection

The Examiner alleges that Kitada et al. teach the claimed invention of cliams 3-14, 18-29, and 33-44. Applicants respectfully submit, however, that the alleged reference does not teach or suggest each and every feature of the claimed invention.

That is, Kitada et al. do not teach or suggest, "*a learning frame management unit which refers to a MAC SA table cache to determine whether a learning frame transmission*

request corresponding to said MAC SA has been made, a MAC forwarding table memory which stores an output port for a destination MAC address and tag operations, and the MAC SA table cache which stores a source MAC address (MAC SA) which has made a learning frame transmission request," (emphasis added by Applicants) as recited in claim 3, and similarly recited in claims 18 and 33. This feature is important because when flow is flown by sending the learning frame through a path opposite to the path where the main signal frame flows, the learning process can be facilitated, the network congestion can be remedied, and the bandwidth usability can be improved.

Kitada et al. disclose a network system, in which when one of the subscriber-side edge L2 switches 20-1 and 20-2 receives a main-signal frame as above after the authentication phase, the subscriber-side edge L2 switch recognizes a service provider to which the user terminal is connected, based on a source MAC address indicated in the above "SOURCE ADDR" field, attaches a tag to the main-signal frame, and transfers the main-signal frame toward the service provider through the access network 6'. When the subscriber-side edge L2 switch does not have address mapping information indicating a correspondence (mapping) between the source MAC address and a service provider, the subscriber-side edge L2 switch discards the main-signal frame (paragraph 0196; Figs. 7-8). Therefore, the subscriber-side edge L2 switch connected to the user terminal can recognize the service provider (VLAN-ID) even when a plurality of VLAN-IDs are obtained by a search of the MAC-VID table T2b based on the source MAC address of the user terminal (paragraph 0375).

The network system of Kitada et al. does not track the record of a learning frame transmission request address, and does not store a source MAC address. In Kitada's network, when the subscriber-side edge switch does not have address mapping information indicating a correspondence between the source MAC address and a service provider, the subscriber-side edge L2 switch discards the main-signal frame.

Kitada et al. further discloses assigning a VLAN tag for every ISP. That is, the tag corresponding to ISP is added to both the frame transmitted to a subscriber from ISP, and the frame transmitted to ISP from a subscriber (paragraph 0220). In Kitada et al., the server performs the mapping intensively. This is different from the claimed invention, in which a learning frame creates the mapping table (MAC forwarding table memory) of a destination MAC address and the tag which should be added by transmitting a learning frame so that

such mapping can be performed automatically. Creation of the table by a learning frame is missing from the teachings of Kitada et al.

Thus, instead of disclosing or suggesting, "*a learning frame management unit which refers to a MAC SA table cache to determine whether a learning frame transmission request corresponding to said MAC SA has been made, a MAC forwarding table memory which stores an output port for a destination MAC address and tag operations, and the MAC SA table cache which stores a source MAC address (MAC SA) which has made a learning frame transmission request,*" (emphasis added by Applicants) as recited in claim 3, and similarly recited in claims 18 and 33, Kitada et al. disclose a network system, wherein the system merely recognizes a service provider and discards the main-signal frame when the subscriber-side edge switch does not have address mapping information indicating a correspondence between the source MAC address and the service provider.

Furthermore, in rejecting claims 4, 19, and 34, the Examiner alleges that Kitada et al. disclose that the nodes include, "*a transmission request unit which makes a learning frame transmission request to a CPU. (par[0239])*" (emphasis added by Applicants) (e.g., see Office Action at page 4, lines 1-2).

Kitada et al. disclose that when the authentication phase is completed, and the IP communication phase begins, the CPU 202 registers a MAC address of a user terminal in an entry of the MAC-VID table T2b corresponding to a service provider to which the user terminal is connected. When the IP communication phase is completed, the CPU 202 removes the MAC address of the user terminal from the MAC-VID table T2b (paragraph 0239; Fig. 12). The network system shown in Fig. 12 and the cited passage disclose a CPU that merely registers and removes a MAC address.

In the claimed invention, after the MAC source address of the frame header information is checked, the MAC SA table cache is read to check whether the same MAC source address is entered. Then, if there is no entry, learning frame transmission request is output together with the frame header information to a transmission request unit.

Thus, instead of disclosing or suggesting, "*a transmission request unit which makes a learning frame transmission request to a CPU,*" (emphasis added by Applicants), as recited in claim 4, and similarly recited in claims 19 and 34, Kitada et al. disclose a CPU that registers and removes a MAC address.

Moreover, in rejecting claims 13, 28, 43, the Examiner alleges that Kitada et al.

disclose that the nodes include, "*a forwarding table having a table read/write circuit. (Fig. 9, par[0223,0242,0276])*" (emphasis added by Applicants) (e.g., see Office Action at page 5, lines 1-2).

Kitada et al. teach forwarding tables T2c each of which indicates forwarding (transfer) information corresponding to a service provider (i.e., corresponding to a value of the VLAN-ID). Specifically, each forwarding table T2c contains information items (columns) "DESTINATION MAC ADDRESS" and "OUTPUT PORT". The information item "OUTPUT PORT" indicates an output port of each subscriber-side edge L2 switch corresponding to each destination MAC address (Paragraph 0223; Fig. 9). The network system of Fig. 9 and cited passages, merely disclose forwarding tables and are silent about table read/write circuit.

Thus, instead of disclosing or suggesting, "*a forwarding table having a table read/write circuit*," (emphasis added by Applicants), as recited in claim 13, and similarly recited in claims 28 and 43, Kitada et al. merely disclose forwarding tables.

Furthermore, regarding claims 6, 21, and 36, Kitada et al. do not teach or suggest, "*a software table, wherein, a network control program uses a set of memory duplicate information to perform an entry search in the software table,*" as recited in claim 6, and similarly recited in claims 21 and 36. This feature is important because when the flow is flown by sending the learning frame through a path opposite to the path where the main signal frame flows, the learning process can be functioned, the network congestion can be remedied from becoming congestion, and the bandwidth usability can be improved

Kitada et al. teach a session management server that produces an ARP relay table based on the session management table when the user authentication is completed (paragraph 0393). When the session management server receives the ARP request frame, and a hit occurs in the ARP relay table, the session management server returns an ARP reply frame to the user terminal on behalf of a target service provider of the ARP request (paragraph 0394). When the subscriber-side edge L2 switch does not have address mapping information indicating a correspondence (mapping) between the source MAC address and a service provider, the subscriber-side edge L2 switch discards the main-signal frame (paragraph 0196; Figs. 7-8). Accordingly, no entry search will be performed based on the memory duplicate information.

Thus, instead of disclosing or suggesting, "*a software table, wherein, a network control program uses a set of memory duplicate information to perform an entry search in*

the software table," as recited in claim 6, and similarly recited in claims 21 and 36, Kitada et al. disclose a session management table that merely evaluates the user authentication and when the subscriber-side edge L2 switch does not have address mapping information indicating a correspondence (mapping) between the source MAC address and a service provider, the subscriber-side edge L2 switch discards the main-signal frame.

Therefore, the Applicants respectfully submit that Kitada et al. fail to teach or suggest each element of Applicants claimed invention. Therefore, the Examiner is respectfully requested to reconsider and withdraw this rejection.

B. The 102(e) Gonda reference rejection

The Examiner alleges that Gonda teach the claimed invention of cliams 15, 30, and 45. Applicants respectfully submit, however, that the alleged reference does not teach or suggest each and every feature of the claimed invention.

That is, Gonda does not teach or suggest, "*a network system for a network having plural nodes connected, wherein a node belonging to said network sends an asymmetrical main signal frame to an Ethernet while maintaining a learning information,*" (emphasis added by Applicants) as recited in claim 15, and similarly recited in claims 30 and 45. This feature is important because even when the networks send the asymmetrical flow by sending the learning frame through a path opposite to the path where the main signal frame flows, the learning process can be functioned, the network congestion can be remedied from becoming congestion, and the bandwidth usability can be improved

Gonda teaches network switching architecture and supporting circuits or frame flows on Ethernet configured networks. When the forward and reverse traffic flow has been established, a bi-directional traffic flow of LAN Ethernet traffic has been established. The destination end station's frame establishes the reverse traffic flow in the same way (paragraphs 0002 and 0041).

However, one of ordinary skill in the art would understand that asymmetrical flow and bi-directional flow are neither equivalent nor interchangeable. That is, "*a bidirectional flow communicates roughly with the same frequency in both directions of a connection. An asymmetrical flow sends more data in one direction than the other*" (emphasis added by Applicants) (e.g., see "Cisco: A Beginner's Guide - By Anthony T. Velte, Toby J. Velte, 2004, McGraw-Hill Professional, page 653).

Therefore, instead of disclosing or suggesting, "*a network system for a network having plural nodes connected, wherein a node belonging to said network sends an asymmetrical main signal frame to an Ethernet while maintaining a learning information,*" (emphasis added by Applicants) as recited in claim 15, and similarly recited in claims 30 and 45, Gonda teaches Ethernet configured networks wherein a bi-directional traffic flow of LAN Ethernet traffic establishes a traffic flow which in the same way in both directions.

Therefore, the Applicants respectfully submit that Gonda fails to teach or suggest each element of Applicants' claimed invention. Therefore, the Examiner is respectfully requested to reconsider and withdraw this rejection.

III. FORMAL MATTERS AND CONCLUSION

The Examiner alleges that "*the information disclosure statement filed 10/06/2003 fails to comply with provisions of 37 CFR 1.97, 1.98 and MPEP §609 because there is no English translation provided.*" Applicants respectfully submit, however, that 37 CFR 1.97, 1.98 and MPEP §609 do not require Applicants to provide a translation of foreign references submitted in an IDS. Indeed, MPEP 37 CFR §1.98 (a)(3) merely requires, "*a concise explanation of the relevance, as it is presently understood by the individual designated in § 1.56(c) most knowledgeable about the content of the information, of each patent, publication, or other information listed that is not in the English language. The concise explanation may be either separate from applicant's specification or incorporated therein*" (emphasis added by Applicants) (e.g., see MPEP 37 CFR §1.98 (a)3). The relevance of the document cited in the information disclosure statement is discussed on page 2 of the subject Application, as pointed out in the IDS.

Accordingly, the Examiner is requested to consider each reference cited in the IDS filed on October 6, 2003. Another copy of the PTO-Form 1449 is attached hereto.

In view of the foregoing, Applicants submit that claims 3-9, 11-15, 18-24, 26-30, 33-39, and 41-45, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 12/12/07

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